

The following listing of claims will replace all prior versions and listings of claims  
in the application:

**Listing of Claims:**

1-8. (canceled)

9. (withdrawn) A method of miniature chemical analysis comprising:  
at least one unit operation chosen from:  
storing at least one reagent on a companion cartridge;  
calibrating at least one sensor on a sensing cartridge with calibration fluid stored  
on said companion cartridge;  
preparing said at least one assay element for said assay;  
transporting said at least one of said assay elements with a carrier fluid; and  
retrieving waste from said assay  
wherein said sensing cartridge is in fluid contact with said companion cartridge.

10. (withdrawn) A method of miniature chemical analysis according to claim 9,  
wherein: said preparing comprises at least one process chosen from blood chemistry,  
hematology, immuno-diagnostics, and DNA testing.

11. (withdrawn) A method of miniature chemical analysis according to claim 10,  
wherein: said process comprises lysis of said assay element.

12. (withdrawn) A method of miniature chemical analysis according to claim 10,  
wherein: said process comprises isolating DNA from said assay element.

13. (withdrawn) A method of miniature chemical analysis according to claim 10, wherein: said process comprises amplifying said assay element with PCR.

14-20. (canceled)

21. (currently amended) A companion cartridge mechanically securable to an associated sensing cartridge that is used to perform an analyzing operation on a body fluid, the companion cartridge comprising:

a base element having a substantially planar shape configured to be inserted into a slot of an diagnostic instrument in coupled relation to the an associated sensing cartridge which has a body fluid sensor and planar surface that physically mates with the base element to connect the companion cartridge with the sensing cartridge that is designed to perform an analyzing operation on a body fluid, wherein the companion cartridge base element and the associated sensing cartridge are elements that are physically distinct from each other and the diagnostic instrument and that, when connected, shaped to define form an interface communicating between the companion cartridge base element and the sensing cartridge;

an entry port, on the base element, that provides entry of a fluid into the companion cartridge;

a fluid reservoir, in the base element, for holding a testing material, wherein the testing material is selected from one or more members of the group consisting of a body fluid and a reagent;

in fluid communication with the fluid reservoir, an operator in which one or more testing materials undergo an assay or an assay preparation process;

wherein the companion cartridge carries out an operation that facilitates the analyzing operation performed by the sensing cartridge, and, in conjunction with the sensing cartridge, has a slot-shaped physical structure that is complementary to the slot of the diagnostic instrument so as to such that the companion cartridge and sensing

cartridge fit within the slot and interact as a modular subcomponent of thea diagnostic instrument.

22. (previously presented) The companion cartridge according to claim 21, wherein the companion cartridge is adapted to at least one interface with said sensing cartridge selected from the group consisting of a fluid interface, a mechanical interface, and an electrical interface.

23. (previously presented) The companion cartridge of claim 21, wherein the companion cartridge comprises a reagent storage system.

24. (previously presented) The companion cartridge of claim 21, wherein the companion cartridge comprises a calibration fluid system.

25. (previously presented) The companion cartridge of claim 24, wherein the companion cartridge further comprises a waste retrieval system connected to the calibration fluid system.

26. (previously presented) The companion cartridge of claim 21, wherein the companion cartridge comprises an assay element preparation system.

27. (previously presented) The companion cartridge of claim 26, wherein the assay element preparation system includes one or more processes selected from the group consisting of a blood chemistry process, a hematology process, an immuno-diagnostics process, and a DNA testing process.

28. (previously presented) The companion cartridge of claim 26, wherein the assay element preparation system includes one ore more operations selected from the

group consisting of a thermo cycling operation, an incubation operation, and an isolation operation.

29. (previously presented) The companion cartridge of claim 21, wherein the companion cartridge comprises a carrier fluid system.

30. (previously presented) The companion cartridge of claim 29, wherein the carrier fluid system is adapted to increase at least a portion of the volume of an assay element.

31. (previously presented) The companion cartridge of claim 29, wherein the carrier fluid system is connected to a waste retrieval system.

32. (previously presented) The companion cartridge of claim 29, further comprising an assay element, wherein the carrier fluid remains essentially unmixed with the assay element.

33. (previously presented) The companion cartridge of claim 29, further comprising an assay element preparation system, wherein the carrier fluid remains essentially unmixed with the assay element.

34. (previously presented) An analytical instrument comprising:  
a companion cartridge according to claim 21 further comprising a reagent storage system, and  
a sensor cartridge in fluid communication with the companion cartridge, wherein the sensor cartridge provides chemical analysis of an assay element.

35. (previously presented) An analytical instrument comprising:

a companion cartridge according to claim 21 further comprising a calibration fluid system, and  
a sensor cartridge in fluid communication with the companion cartridge, wherein the sensor cartridge provides chemical analysis of an assay element.

36. (previously presented) An analytical instrument comprising:  
a companion cartridge according to claim 21 further comprising an assay element preparation system, and  
a sensor cartridge in fluid communication with the companion cartridge, wherein the sensor cartridge provides chemical analysis of an assay element.

37. (previously presented) An analytical instrument comprising:  
a companion cartridge according to claim 21 further comprising a carrier fluid system, and  
a sensor cartridge in fluid communication with the companion cartridge, wherein the sensor cartridge provides chemical analysis of an assay element.

38. (previously presented) An analytical instrument comprising:  
a companion cartridge according to claim 21 further comprising a waste retrieval system, and  
a sensor cartridge in fluid communication with the companion cartridge, wherein the sensor cartridge provides chemical analysis of an assay element.

39. (previously presented) An analytical instrument comprising:  
a companion cartridge according to claim 21 further comprising one or more systems selected from the group consisting of a reagent storage system, a calibration fluid system, an assay element preparation system, a carrier fluid system, and a waste retrieval system, and

a sensor cartridge in fluid communication with the companion cartridge, wherein the sensor cartridge provides chemical analysis of an assay element.

40. (previously presented) The analytical instrument of claim 39, wherein the chemical analysis comprises one or more clinical processes selected from the group consisting of a blood chemistry process, a hematology process, an immuno-diagnostics process, and a DNA testing process.

41. (previously presented) The analytical instrument of claim 39, wherein the chemical analysis comprises lysis of an assay element.

42. (previously presented) The analytical instrument according of claim 39, wherein the chemical analysis comprises isolating DNA from at least one assay element.

43. (previously presented) The analytical instrument of claim 39, wherein the chemical analysis comprises amplifying at least one assay element with PCR.